

Work Order ID 147082

147082

Page 1

Tuesday, May 31, 2016 10:58:17 AM

Item ID: D6101-005 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Saddle Billet

Start Date: 6/3/2016 Start Qty: 20.00 *20* Cust Item ID:
 Required Date: 6/17/2016 Req'd Qty: 20.00 *20* Customer:

Reference:

Approvals: Process Plan: MLJ Date: MAY 31 2016 Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D6101	Rev B

100	PURCHASING	0.00				20		JUN 02 2016	DAS 13 9-09
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100

Purchasing

Purchasing

Memo

Issue P/O: 32589

a) Description: Aluminum billet

b) 5.00" x 8.250" x 2.50" thick

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Grain direction along 5.00" length

e) Material: 7075-T7351 (QQ-A-250/12)

f) Material certification required

110	Receive & Inspect for Damage & Mat'l Certs	0.00							DAS 6 9-09
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110

Packaging

Packaging

Memo

Ensure material certification is attached

JUL 04 2016

DQA: _____ Date: _____

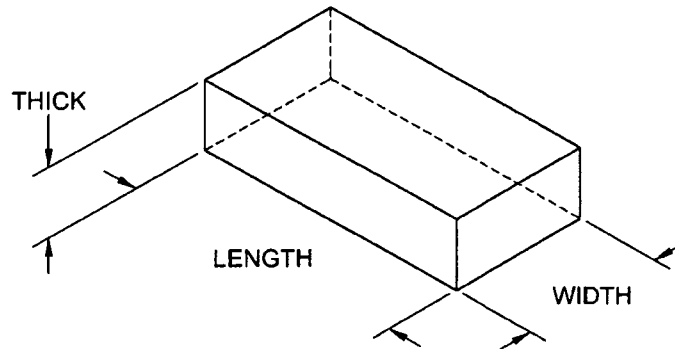
**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td style="border: none;"></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Root Cause				FAULT CATEGORY																																																																					
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OTHER :																																																																									

SPECIFICATION CONTROL DRAWING



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

RELEASED
09/07/15/WP

SHOP COPY
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 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 1472082 MJS
 16-05-31

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

**INTERORG TRANSFER
PACKING SLIP/
CERTIFICATE OF CONFORMANCE**

Page 1 of 2

Shipment No:3008333

Ship From: A. M. CASTLE & CO. 4175 ROYAL DRIVE SUITE 600 KENNESAW, GA 30144 USA		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped	F.O.B.	Freight Terms	Carrier	BOL No			
23-JUN-16	ORIGIN	Prepaid	ABF	3008333-2			

Shipment Details	Final Destination Branch - TOR
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Order No 4384550	Line No 1	Item No 752241.MO	Description 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 8.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) - ALUMINUM PLATE SAW SPECIFICATIONS; AMS-QQ-A-250/12				
Purchase Order No 32589		Part Number YOUR ITEM NUMBER: D6101-005		Ordered Qty 20.00 PCS		Invoice Qty 20.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No. 120465567	Mill KAISER ALUMINUM	Heat Number 	Mech Id	PCS 20	Width (IN)	Length (IN)	Shipped Qty(LBS) 213.3121

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.

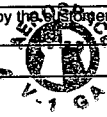
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INTERORG TRANSFER
PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.		
Reviewed by Authorized Castle Metals Representative:	Date:	Name: <i>SSM</i>

JUN 23 2016



SHIP TO: A M CASTLE METALS 4175 ROYAL DRIVE, SUITE 600 KENNESAW, GA 30144
SOLD TO: AM CASTLE & CO- SOLD TO 1420 KENSINGTON RD SUITE 220 OAK BROOK, IL 60523

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4410869

CUSTOMER PO NUMBER: 350778		WORK PACKAGE:	CUSTOMER PART NUMBER: 752241		SHIP RUN/LOAD: 103498/8	GOV'T CONTRACT NUMBER:
KAISER ORDER NO: 1201303	LINE ITEM: 1	SHIP DATE: 10-MAR-2016	ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: KaiserSelect Plate
WEIGHT SHIPPED: 16189 LB	QUANTITY: 9 PCS EST.	TRUCK B/L #: 2059102	GUAGE: 2.5000 IN (63.5000 MM)	DIAMETER/WIDTH: 48.500 IN (1231.9 MM)		LENGTH: 144.500 IN (3670.3 MM)

MHU 1980418: LOT 168755B7: 2 pieces;
MHU 1980419: LOT 168755B7: 1 pieces;
MHU 1981283: LOT 171681B0: 2 pieces;
MHU 1981285: LOT 171681B0: 1 pieces;
MHU 1981286: LOT 784978A9: 2 pieces;
MHU 1981298: LOT 171706B5: 1 pieces;

DAS
14
9-89 16/09/05

Certified Specifications

AMS 4078/RevJ
ASTM B 209/Rev14
BSS 7055/RevB
DPS 4.713/RevAK
MMS 159/RevT

AMS-QQ-A-250/12/RevA
ASTM-B-594/Rev13
CMMP 025/RevU
GAMPS 9101/RevB/AmdSCN1
PS 21211/RevP

AMS-STD-2154/RevA
BAC 5439/RevJ
CSTI 006/RevE
GSS16100/RevG/Amd1

Test Code: 4297

Test Results



MAR 18 2016

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4410869

Lot: 16875587 Cast 167 Drop 05 Ingot 4 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper <u>T7351</u>	Dir / # Tests LT / 2 (Min:Max)	Ultimate KSI (MPA) 70.7 : 70.8 (487 : 488)	Yield KSI (MPA) 59.5 : 59.6 (410 : 411)	Elongation % 11.3 : 11.3
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(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.6 Min	40.8 Max
(MS/M) :	23.5 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.07	0.16	1.5	0.02	2.4	0.21	5.8	0.03	0.01	0.01	TOT 0.05

Lot: 171681B0 Cast 167 Drop 27 Ingot 4DAS Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper T7351	Dir / # Tests LT / 2 (Min:Max)	Ultimate KSI (MPA) 70.5 : 70.5 (486 : 486)	Yield KSI (MPA) 59.2 : 59.3 (408 : 409)	Elongation % 11.4 : 11.5
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(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	41.5 Min	42.2 Max
(MS/M) :	24.1 Min	24.5 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.05	0.14	1.5	0.01	2.5	0.19	5.9	0.02	0.01	0.00	TOT 0.05



Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4410869

Lot: 171706B5 Cast 167 Drop 18 Ingot 2 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.2 : 71.3 (484 : 492)	59.2 : 60.6 (408 : 418)	11.1 : 11.4

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.6 Min	41.1 Max
(MS/M) :	23.5 Min	23.8 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.06	0.16	1.5	0.02	2.6	0.20	5.9	0.02	0.01	0.01	TOT 0.05

Lot: 784978A9 Cast 167 Drop 27 Ingot 5 Parent Lot: 171700B8 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.1 : 72.0 (490 : 496)	60.0 : 61.4 (414 : 423)	11.3 : 11.6

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.9 Min	41.7 Max
(MS/M) :	23.7 Min	24.2 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.05	0.14	1.5	0.01	2.5	0.19	5.9	0.02	0.01	0.00	TOT 0.05

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4410869

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN(wt%)	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

ORDER COMMENTS

AMC CA-15413B R 6

AMS 4078,AMS QQ-A-250/12,AMS STD-2154,A

STM B209,ASTM B594,BS

S 7055,CMMF 025,CSTI 006,DPS 4.713,GAMP

S 9101,MMS 159,PS 212

11

TEST NOTES

Metal represented by this test report was 100% Type I
(immersion) ultrasonically tested from one side with 3mm
dead zones top and bottom and meets the Class A and Class B
requirements of all specifications referenced on this test
report. No surface marking of sonic indications is
performed.

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC (Kaiser), is ISO-9001:2008/AS9100C certified and hereby certifies that all material shipped under this order:

* has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements.

* was melted in the United States of America or a qualifying country per DFARS 225.672-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.

* has been thermally processed in compliance with AMS 2772, where applicable.

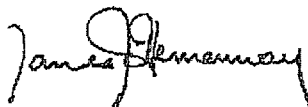
* is mercury free, within the limits of detection of ASTM E1251 (< = 1ppm).

* is in compliance with RoHS 2, European Union Directive 2011/65/EU.

* is in compliance with and regularly monitors any updates to the European Chemical Agency, ECHA, REACH regulations, (EC) n°1907/2006.

* is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.



JAMES HEMENWAY, TECHNICAL PROCESS MANAGER

**Castle Metals®**

A. M. Castle & Co. (Canada) Inc.

COMMERCIAL INVOICE

Please Ship Confirm

Ship From:A. M. Castle & Co. (Canada)
Inc.
4175 Royal Drive Suite 600
Kennesaw GA, 30144 US**Remit To:**A.M. CASTLE & CO.
(CANADA) INC.
c/o 310211
P. O. BOX 578 STN M
CALGARY, AB T2P 2J2**Shipping Mark:****Delivery Number:**

120465567

Order No.	Date Shipped	Due Date	Payment Terms
4384550			
Acct No	Customer P.O. No	Terms	
50676	32589		

SOLD TO:

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7CANADA**SHIP TO**

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7CANADA**DELIVER TO**

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7CANADA**VAT:****Contract No.****BOL #:** Please Ship Confirm**Shipped Via:****Freight/INCO Terms:** Paid HAWKESBURY ON K6A 1K7 Canada

Ln#	Ordering Information	Shipping Cost / UOM	Amount
1	Purchase Order #: 32589 Order #: 4384550 Item #: 752241.MO Item Description: 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 Cutting Description: CUT 2SIDED TO 8.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) Process Description: - ALUMINUM PLATE SAW Customer Part Number: D6101-005 Heat Number 168755B7 Country of Origin US Specifications: AMS-QQ-A-250/12	Net Shipped Weight: 213.31 LBS Shipped Qty: 20 PCS Unit Price: 36.20 / PCS Export License NLR ECCN EAR99 ITAR N/A	724.00

Remit to Currency: USD

Line Total:	724.00
Taxes:	94.12
Invoice Total:	818.12

TO THE EXTENT THESE COMMODITIES, TECHNOLOGY, OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO US LAW PROHIBITED



Castle Metals®

A. M. Castle & Co. (Canada) Inc.

Commercial Invoice Summary

Number: 4384550-1-

BOL Number:

Delivery Nbr: 120465567

Combined Invoice Total:

Total Extended Line Amount	724.00
Total Tax Amount	94.12
Grand Total	818.12

A.M. Castle & Co. hereby certify this invoice to be true and correct in all particulars

Signature



TO THE EXTENT THESE COMMODITIES, TECHNOLOGY, OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO US LAW PROHIBITED

23 June 2016 14:27:47 PM

Page 2 of 3

Packing Info:

Qty	Packaging Description	Net Weight	Tare Weight	Gross Weight
1	SKID 52 X 40 X 8	213 LBS	75 LBS	288 LBS

INTERORG TRANSFER
PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3008333

Ship From: A. M. CASTLE & CO. 4175 ROYAL DRIVE SUITE 600 KENNESAW, GA 30144 USA		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 23-JUN-16	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier ABF		BOL No 3008333-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No 4384550	Line No 1	Item No 752241.MO	Description 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 8.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) - ALUMINUM PLATE SAW SPECIFICATIONS: AMS-QQ-A-250/12				
Purchase Order No 32589		Part Number YOUR ITEM NUMBER: D6101-005		Ordered Qty 20.00 PCS		Invoice Qty 20.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS 14/7/16 50					
Delivery No. 120465567	Mill KAISER ALUMINUM	Heat Number 	Mech Id	PCS 20	Width (IN)	Length (IN)	Shipped Qty(LBS) 213.3121

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.

Date Printed: 23-JUN-2016 03:04:03 PM

INTERORG TRANSFER
PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the shipper cannot be returned for credit.	
Reviewed by Authorized Castle Metals Representative:	Date: JUN 23 2016 Name: 



SHIP TO: A M CASTLE METALS 4175 ROYAL DRIVE, SUITE 600 KENNESAW, GA 30144
SOLD TO: AM CASTLE & CO- SOLD TO 1420 KENSINGTON RD SUITE 220 OAK BROOK, IL 60523

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
 Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
 4410869

CUSTOMER PO NUMBER: 350778		WORK PACKAGE:		CUSTOMER PART NUMBER: 752241		SHIP RUN/LOAD: 103498/8		GOV'T CONTRACT NUMBER:	
KAISER ORDER NO: 1201303	LINE ITEM: 1	SHIP DATE: 10-MAR-2016	ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: KaiserSelect Plate			
WEIGHT SHIPPED: 16189 LB	QUANTITY: 9 PCS EST.	TRUCK B/L #: 2059102	GAUGE: 2.5000 IN (63.5000 MM)		DIAMETER/WIDTH: 48.500 IN (1231.9 MM)		LENGTH: 144.500 IN (3670.3 MM)		

MHU 1980418: LOT 168755B7: 2 pieces;
 MHU 1980419: LOT 168755B7: 1 pieces;
 MHU 1981283: LOT 171681B0: 2 pieces;
 MHU 1981285: LOT 171681B0: 1 pieces;
 MHU 1981286: LOT 784978A9: 2 pieces;
 MHU 1981298: LOT 171706B5: 1 pieces;

Certified Specifications

AMS 4078/RevJ
 ASTM B 209/Rev14
 BSS 7055/RevB
 DPS 4.713/RevAK
 MMS 159/RevT

AMS-QQ-A-250/12/RevA
 ASTM B 594/Rev13
 CMMP 025/RevU
 GAMPS 9101/RevB/AmdSCN1
 PS 21211/RevP

AMS-STD-2154/RevA
 BAC 5439/RevJ
 CSTI 006/RevE
 GSS16100/RevG/Amd1

Test Code: 4297

Test Results



MAR 18 2016



Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4410869

Lot: 168755B7 Cast 167 Drop 05 Ingot 4 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.7 : 70.8 (487 : 488)	59.5 : 59.6 (410 : 411)	11.3 : 11.3

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.6 Min	40.8 Max
(MS/M) :	23.5 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.07	0.16	1.5	0.02	2.4	0.21	5.8	0.03	0.01	0.01	TOT 0.05

Lot: 171681B0 Cast 167 Drop 27 Ingot 4 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.5 : 70.5 (486 : 486)	59.2 : 59.3 (408 : 409)	11.4 : 11.5

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	41.5 Min	42.2 Max
(MS/M) :	24.1 Min	24.5 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.05	0.14	1.5	0.01	2.5	0.19	5.9	0.02	0.01	0.00	TOT 0.05



Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4410869

Lot: 171706B5 Cast 167 Drop 18 Ingot 2 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.2 : 71.3 (484 : 492)	59.2 : 60.6 (408 : 418)	11.1 : 11.4

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.6 Min	41.1 Max
(MS/M) :	23.5 Min	23.8 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.06	0.16	1.5	0.02	2.6	0.20	5.9	0.02	0.01	0.01	TOT 0.05

Lot: 784978A9 Cast 167 Drop 27 Ingot 5 Parent Lot: 171700B8 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.1 : 72.0 (490 : 496)	60.0 : 61.4 (414 : 423)	11.3 : 11.6

(ASTM E1004)
(EN 2004-1)

Conductivity %IACS :	40.9 Min	41.7 Max
(MS/M) :	23.7 Min	24.2 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.05	0.14	1.5	0.01	2.5	0.19	5.9	0.02	0.01	0.00	TOT 0.05

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4410869

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN(wt%)	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

ORDER COMMENTS

AMC CA-154138 R 6

AMS 4078, AMS QQ-A-250/12, AMS STD-2154, A

STM B209, ASTM B594, BS

S 7055, CMMP 025, CSTI 006, DPS 4.713, GAMP

S 9101, MMS 158, PS 212

11

TEST NOTES

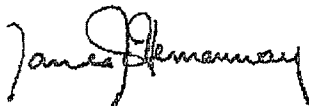
Metal represented by this test report was 100% Type I (immersion) ultrasonically tested from one side with 3mm dead zones top and bottom and meets the Class A and Class B requirements of all specifications referenced on this test report. No surface marking of sonic indications is performed.

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC (Kaiser), is ISO-9001:2008/AS9100C certified and hereby certifies that all material shipped under this order:

- * has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements.
- * was melted in the United States of America or a qualifying country per DFARS 225.672-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.
- * has been thermally processed in compliance with AMS 2772, where applicable.
- * is mercury free, within the limits of detection of ASTM E1251 (< = 1ppm).
- * is in compliance with RoHS 2, European Union Directive 2011/65/EU.
- * is in compliance with and regularly monitors any updates to the European Chemical Agency, ECHA, REACH regulations, (EC) n°1907/2006.
- * is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.



JAMES HEMENWAY, TECHNICAL PROCESS MANAGER

**Castle Metals®**

A. M. Castle & Co. (Canada) Inc.

COMMERCIAL INVOICE

Please Ship Confirm

Ship From:A. M. Castle & Co. (Canada)
Inc.
4175 Royal Drive Suite 600
Kennesaw GA, 30144 US**Remit To:**A.M. CASTLE & CO.
(CANADA) INC.
c/o 310211
P. O. BOX 578 STN M
CALGARY, AB T2P 2J2**Shipping Mark:****Delivery Number:**

120465567

Order No.	Date Shipped	Due Date	Payment Terms
4384550			Terms
Acct No	Customer P.O. No		
50676	32589		
SOLD TO:	SHIP TO	DELIVER TO	
DART AEROSPACE LTD	DART AEROSPACE LTD	DART AEROSPACE LTD	
1270 ABERDEEN HAWKESBURY, ON K6A 1K7CANADA	1270 ABERDEEN HAWKESBURY, ON K6A 1K7CANADA	1270 ABERDEEN HAWKESBURY, ON K6A 1K7CANADA	

VAT:**Contract No.****BOL #:** Please Ship Confirm**Shipped Via:****Freight/INCO Terms:** Paid HAWKESBURY ON K6A 1K7 Canada

Ln#	Ordering Information	Shipping Cost / UOM	Amount
1	Purchase Order #: 32589 Order #: 4384550 Item #: 752241.MO Item Description: 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 Cutting Description: CUT 2SIDED TO 8.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) Process Description: - ALUMINUM PLATE SAW Customer Part Number: D6101-005 Heat Number 168755B7 Country of Origin US Tariff Code: 7606123030 Export License NLR ECCN EAR99 ITAR N/A Specifications: AMS-QQ-A-250/12	Net Shipped Weight: 213.31 LBS Shipped Qty: 20 PCS Unit Price: 36.20 / PCS	724.00

Line Total: 724.00**Taxes:** 94.12**Invoice Total:** 818.12**Remit to Currency:** USD

TO THE EXTENT THESE COMMODITIES, TECHNOLOGY, OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO US LAW PROHIBITED

23 June 2016 14:27:47 PM

Page 1 of 3



Castle Metals®

A. M. Castle & Co. (Canada) Inc.

Commercial Invoice Summary

Number: 4384550-1-

BOL Number:

Delivery Nbr: 120465567

Combined Invoice Total:

Total Extended Line Amount	724.00
Total Tax Amount	94.12
Grand Total	818.12

A.M. Castle & Co. hereby certify this invoice to be true and correct in all particulars

Signature

SSMCH



TO THE EXTENT THESE COMMODITIES, TECHNOLOGY, OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO US LAW PROHIBITED

23 June 2016 14:27:47 PM

Page 2 of 3

Packing Info:

Qty	Packaging Description	Net Weight	Tare Weight	Gross Weight
1	SKID 52 X 40 X 8	213 LBS	75 LBS	288 LBS



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO32589**

Purchase Order Date 6/3/2016

PO Print Date 6/3/2016

Page Number 1 of 2

Order From :

METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W OE9
CANADA

VU-MET002

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED

Contact Name
Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency USD
FOB Destination-Collect

JUN 03 2016

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	M2024T3A.750X.750X.063W	Angle2024T3511 .750 x .750 x .063w	6/20/2016 Yes 6/20/2016		24.00 ✓ f	\$25.64	\$615.24
MATERIAL: 2024-T3/T3510/T3511 ALUMINUM ANGLE AS PER AMS-QQ-A-200/3 PR AMS 4152/4164/4165 MATERIAL # 60-34384-23-144							
Line Total:							\$615.24
2	D6102-013P ✓	6061-T6 7.0X6.5X2.0 ✓	6/20/2016 Yes 6/20/2016		20.00 ✓ Each	\$31.65	\$633.00
AS PER DWG D6102 REV. D B147083 SIZE: 7.000" X 6.500" X 2.00" THICK GRAIN DIRECTION ALONG 6.500" MATERIAL 6061-T6/T6511 QQ-A-250/11 TOLERANCE AS PER QUOTE +.030"/-.000							
Line Total:							\$633.00

Note:

6/3/2016



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO32589

Purchase Order Date 6/3/2016

PO Print Date 6/3/2016

Page Number 2 of 2

Order From :

METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W OE9
CANADA

VU-MET002

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

USD

FOB

Destination-Collect

3	D6101-005P	7075-T7351 8.25X5.0X2.5	6/20/2016	20.00	\$36.20	\$724.00
			Yes	Each		
			6/20/2016			

AS PER DWG.D6101 REV.B
B147082
SIZE: 5.00" X 8.250" X 2.50" THICK
GRAIN DIRECTION ALONG 5.00" LENGHT
MATERIAL: 7075-T7351 QQ-A-250/12
TOLERANCE AS PER QUOTE +.030"/-.000"

Line Total: \$724.00

4	71401-45	PROCUREMENT QUALITY CLAUSES	6/20/2016	1.00	\$0.00	\$0.00
			No			
			6/20/2016			

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of materila conformance
A041 quality management system
A042 dart noyification by supplier
A043 retention of quality documents

Line Total: \$0.00

PO Total: \$1,972.24

Note: Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Change Nbr: 1

Change Date: 6/3/2016

MATERIAL RECEIPT INSPECTION FORM

PO / BATCH NO 32589/147082

MATERIAL D16101-005
DATE 16/07/05

MATERIAL CERT REC'D yes
QUANTITY RECEIVED 20
QUANTITY INSPECTED 20
QUANTITY REJECTED _____

THICKNESS ORDERED 5.00X8.25X2.50
THICKNESS RECEIVED 5.00X8.25X2.50
SHEET SIZE ORDERED _____
SHEET SIZE RECEIVED _____

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	☒ Y ☒ N	
CORRECT FINISH	☒ Y ☒ N	
CORROSION	☒ Y ☒ N	
CORRECT GRAIN DIRECTION	☒ Y ☒ N	
CORRECT MATERIAL	☒ Y ☒ N	
CORRECT THICKNESS	☒ Y ☒ N	
PHOTO REQUIRED	☒ Y ☒ N	
CORRECT MATERIAL	☒ Y ☒ N	
CORRECT REF # TO LINK CERT	☒ Y ☒ N	
CORRECT MATERIAL IDENTIFICATION	☒ Y ☒ N	
CORRECT M# ON THE MATERIAL	☒ Y ☒ N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	☒ Y ☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	☒ Y ☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK RECORD RESULTS BELOW				
	HRC	HRB	DUR A	DUR D
TYPE OF MATERIAL				
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY <u>DAS</u>	SIGNED OFF BY _____		
DATE <u>16/07/05</u>	DATE _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

1. VERIFY STOCK TO DART PURCHASE ORDER
2. MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
3. VERIFY CONDITION OF MATERIAL (e.g. DAMAGED, CORRODED, etc)
4. VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
5. VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
6. REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

1. VERIFY TO DART SUPPLIED DRAWING
 2. SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
 3. USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
 4. VERIFY THAT MATERIAL CERTS MATCH TO WHATS CALLED UP ON THE DART DRAWING
- AFTER MATERIAL PASSES INSPECTION**
5. HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN 20pcs FOR FULL INSPECTION
 6. INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

1. VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
2. INSPECT MIN HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
3. INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
4. IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE 2,) AND W/O# AND PO#
5. RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE OC COORDINATOR BEFORE GOING FURTHER